

ON OMENTAL TUMORS DUE TO ADHESIVE INFLAMMATION.¹

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MY INTENTION is to speak on a certain class of omental tumors, which though not unknown, are not sufficiently estimated in differential diagnosis. They may be of a more or less spurious character, yet they clinically offer all the features of real tumors. My subject is thus not the tubercular or the malignant new-growth, but the tumor-like conglomeration and the purely cicatricial tumor-like thickening of the omentum, the results of inflammatory processes.

In my opinion the purpose of the omentum is not only to serve as a protective padding to the abdominal cavity against undue forces from without ; but it has a much more important office, that is the protection of the peritoneal cavity against infection from a diseased point within. The slightest irritation anywhere on the peritoneal surface, parietal or visceral, causes the omentum to attach itself over the affected area, if accessible, and in this way to shut off the focus of infection from the remainder of the peritoneal cavity. Thus omental adhesions will be found whenever the surface of liver, stomach, gall-bladder, etc., becomes affected, or whenever virulent material enters through the Fallopian tubes, but obviously affections of the bowel-walls will offer the most frequent and direct occasion. And it is not at all necessary that there should be macroscopic changes, ulcers, abrasions, perforations, etc.; it will suffice that the bowel-wall be so altered as to allow pathogenic germs or their derivatives to penetrate or to percolate through them. As is well known, also in abdominal operations, the

¹Read before the Galveston Medical Club.

slightest traumatism or the least infection will cause omental adhesions. Senn's omental grafting offers sufficient proof of the ease with which omentum attaches itself to serous surfaces, and all who have had the opportunity of reopening the abdomen after laparotomy have made the same discovery. Omental adhesions are nearly always found, as happened to me in five cases.

Now, after such adhesions are established, it only depends upon their size and compactness whether they will offer to the examiner the clinical features of a tumor or not. Most likely the irritation of the omental structures will not be limited to the close neighborhood of the focus of infection; the inflammatory process will probably extend into more distant portions, and the consequence will be that folds which are further away will adhere together and thus increase the size of the tumor.

Thus we will have a swelling of an acute origin which ought to be placed on the list of abdominal tumors for differential diagnosis.

Speaking of the symptoms and characteristic features of the omental tumor, I would first mention the presence or the close precedence of some inflammatory affection, situated somewhere in the abdominal cavity, especially of the alimentary canal. Next is the sudden appearance of the tumor. I do not know of any other swelling which could form with such rapidity. The best example of this tumor which is well known is typhlitis and perityphlitis. It has found other explanations. Some consider it a coprostasis in the cæcum; others an œdematous infiltration of the pericæcal areolar tissue. I will not deny that such may be the case, but, in my opinion, in most instances we have to deal with omental tumors.¹ It is not easily understood how a mass of scybala may so suddenly be thrown into the cæcum, nor how it so rapidly disappears even without a passage from the bowels. Besides, the swelling is often exceedingly painful to the touch, more so than a simple accumu-

¹Since this paper was read, I find in a report of the "Transactions of the Medical Society of Berlin," that A. Fränkel has given an explanation of the tumor of perityphlitis identical with my own.

lation of fæces would let us believe. And then the doughy, pulpy consistency does not correspond with that of hard scybala. Finally, such tumors are not always situated over the cæcum. They appear anywhere in the abdomen. The appendical area is a favorite locality, because at this point inflammation so frequently occurs. Also some of the omental fringes which seem to be more inclined to attachments than the median portion, terminate there.

Against the assumption that œdematous swelling of the areolar tissue around the cæcum causes the tumor, may be urged the indented contour of the more or less well defined borders, whilst an œdema would present rather a rounded surface with illy defined limitations. Also, the superficial location in front speaks against it, because the bulk of areolar tissue is situated more to the outside and behind the cæcum. Besides, the relative hardness and the absence of pitting forbid the assumption of a mere infiltration. Still, I would not be so positive in my assertion, had I not twice had the opportunity of satisfying myself on the operation table that the perityphlitic tumor was nothing but adherent omentum, and I know that others have had a similar experience. The omental cake is, as said, not necessarily situated over the cæcum or appendix. In a case where after the abdominal operation a slight peritonitis followed, I met it right over the right flexura coli. It was as large as a saucer, slightly movable, painful and of pulpy consistency. It disappeared in a short time under warm cataplasms. In another instance I found it, in consultation with Dr. George Sykes, in a female patient, who was suffering from a fully developed peritonitis from appendicitis, in the left side, far away from the seat of the primary trouble. It had suddenly appeared, was very painful on touch, and was taken by us for an encapsulated mass of pus. We were only prevented from performing a laparotomy by the lateness of the hour. Next day all the tumor was gone. Patient eventually recovered. What could this tumor have been, but omental folds which suddenly became adherent but so lightly as to free themselves during the peristaltic motions. I would remind you of a somewhat similar process when an omental hernia is set free by operation. There a large mass of omen-

tal folds, held together and to the surrounding structures by adhesive threads, is suddenly liberated and, if replaced into the abdomen, at once unfurls itself and disappears.

In investigating the further fate of the acute omental tumor, we find the following possible outcomes:

1. The inflammation may subside, resorption of all abnormal products set in, and the omentum may detach itself. The tumor disappears.

2. The inflammation subsides, but the omental adhesions become firm and organized. The tumor becomes chronic.

3. The primary inflammatory process persists, and the omental attachments around the diseased tissues persist also. A chronic tumor is formed, consisting of an inflammatory focus, surrounded by omentum. (abscess).

4. The inflammation terminates, the omentum becomes freed, but its tissues are so altered by the inflammatory process that thick cicatrices remain. If they are massive enough, the chronic tumor is accessible to diagnosis.

As examples of a speedy resolution the two cases mentioned before will serve; for the second outcome, a chronic tumor due to firm adhesions, I offer the following history:

A lady, æt. 28, was operated on by me, a year previously, for chronic salpingitis by removal of the uterine appendages. She made a slow recovery from the operation, as there was a left-sided pelveo-peritonitis following. She went home after a two months' stay, but returned a year after, because the pain in the left side had become more severe than ever. There was a tumor in the left parametrium, of the size of a small fist, felt through vagina and from without. No fever. The presence of adhesions and perhaps an abscess was to be expected. A new laparotomy revealed a mass of omentum adherent to the uterine stump; no abscess. This mass was detached, ligated and cut away. Improvement followed.

Adhesions forming after laparotomies do, no doubt, constitute the most common cause of failure to give the expected relief, and if I am correct, the omental ones are the most painful and annoying on account of their dragging on the stomach.

Proceeding now to such instances where the omental tumor continues to act as an enclosing bag all around the focus of in-

fection, mostly around a perforation, or, in other words, where the omental folds constitute the walls of a chronic abscess, I would report a case of perforating appendicitis in a young lady of 17 years, a patient of Dr. Walker, of Schulenburg. She was ailing for over a year from pains in the right so-called ovarian region, perhaps better expressed, cæcal region. There was hectic fever of a low type, and constipation, which latter, though, was easily regulated by medicines. Dr. W. suspected perityphlitis, but was handicapped by all kinds of family influence, and did not prevail upon the parents to allow operative interference. Patient, who had then gone through other medical hands, became finally so low that Dr. W., being consulted again, insisted upon an operation as the last refuge. Called to his assistance, I found patient in so desperate a condition that even an external examination seemed to be too much for her before she was put under chloroform. There was then found a tumor of the size of a child's head over right Poupart's ligament. Upon incision, purulent fluid, mixed with fecal matter, welled out in great quantity. The tumor itself consisted of omentum, which enclosed an abscess cavity in communication with the perforated cæcum, or rather with the opening of a perfectly destroyed appendix into the cæcum. This abscess tumor was tightly closed up and shut off from the balance of the intraperitoneal cavity by omentum. I had to cut through the omental hull to find out the described condition. The fresh additional peritonitis, which had brought on the change for the worse, was due to a second perforation of more recent date, in the ascending colon. As soon as the case was cleared up, the hopelessness of it made us terminate the operation. The abdomen was washed out and drained. Patient died the following night.

Another still more remarkable case came in my hands in the John Sealy Hospital, only a few weeks ago. A married woman, of some 30 years, an invalid since her 16th year, and under constant medical care for uterine disorders, was sent in by Dr. E. Randall for operation for double pyosalpinx. Her womb was not very large, extending upward, so as to be felt as a nodulated mass over the symphysis. It was entirely immovable, and both parametrical spaces were filled with

doughy masses, which did not admit any differentiation of the parts. High fever and great suffering. Shortly after her entrance, purulent discharge from the rectum gave her some relief and diminished the fulness of the left parametrium. On her request laparotomy was undertaken, with the view to free the womb, and to do away with the pus in the tubes. The first thing I met was a large mass of omentum adherent to the fundus uteri, and constituting the largest part of the diagnosed uterine enlargement. After its detachment it became evident that the omental fringes had closed up all around a uterine perforation on the summit of the fundus, and of the size of a 25 cent piece. The engorged omental portion was tied and cut away; the womb then resected in a funnel shape, and the wound closed. The right pyosalpinx was then opened and washed out. The patient here collapsed so much that the operation had to be terminated. She succumbed to shock and loss of blood in the following night. I do not see any other explanation for this extraordinary perforation, but that it was made long ago by some attempt at abortion, or by some injudicious intra-uterine manipulation. It was evidently of old standing, as the dark, ragged and indurated walls indicated. The omentum had performed its full duty in shutting off this door of infection from the intra-peritoneal cavity by forming a firmly adherent cap over the perforation.

I now approach the last class, the endo-omental tumor, without adhesions to other tissues.

Orth divides such processes into *omentitis chronica fibrosa*, *omentitis fibrosa retrahens* and *omentitis adhesiva*, the latter meaning adhesions between the different parts of the omentum itself. Here we are interested only in those cases which appear clinically as tumor-like formations, accessible to physical diagnosis. They are not very frequent, because the cicatricial mass is not often bulky enough to be felt through the abdominal wall. It is important, though, that we remember this variety of tumor, when swellings in the upper part of the abdomen have to be diagnosed. The tumor will be rarely very large, it will be hard and nodulated, situated superficially and in front of the colon, will be movable in every direction, but in a limited circle. It will not be painful on touch, not growing, and

the history of the case will reveal some abdominal trouble preceding the discovery of the tumor, perhaps for years. Often the swelling will be detected only accidentally. The differentiation from tuberculous and malignant growth is easy. The absence of cachexia, pain, ascites, etc., will at once settle the benign nature. The same will be the case with pyloric cancer, or that of the gall-bladder. Perhaps some non-malignant tumors, belonging to these organs, may offer some differential difficulty, but considering the perfect freedom from constitutional disturbances, and the above mentioned peculiarities of the omental tumor, we would not be very liable to make mistakes.

Again, a movable kidney may be confounded with it, and, *vice versa*. But the kidney can be replaced, can be felt from behind, is mostly covered by the colon, has a different shape and surface, etc. Still, I recollect a case where it was difficult to come to a satisfactory conclusion. Finally, tumors in the abdominal parietes may come into question. If these latter can be lifted up with the tumor, there will be no doubt left; but if the tumor should have formed adhesions with the omentum, a differential diagnosis may become even impossible.

One of my cases was a lady of some 30 years. She accidentally detected a tumor, the size of a hen's egg, in a place where we are used to look for the gall-bladder. There was not the slightest suffering with it; the tumor was painless, hard, superficial, could be moved in a limited area in all directions, etc. Nothing was done for it, and it never annoyed the owner.

The following is the history of an extraordinary case, whose description I found in the *Archiv f. klinische Medicin*, for August, 1874. A woman, æt. 57, very emaciated, with anasarca and ascites, presents not a trace of liver dulness, even after tapping. But there are two tumors, one in the upper portion of the abdomen, directly below the parietes, and reaching from the right mammillary line over into the left side. Downward, in the height of umbilicus it has a sharp margin, with a distinct notch. The surface is smooth. Dulness on percussion. The second tumor is round, as big as a child's head, can easily be palpated over the symphysis, and to the right of it. No connection between the two tumors except by a string-like band.

Examination per vaginam, rectum, etc., reveals nothing to be used for diagnosis. The upper tumor is then considered to be the dislocated liver, the other an ovarian tumor. Post-mortem after one year of observation, by Prof. Ziegler. The upper tumor is not the liver, but the omentum which, by chronic inflammation, was thickened to the extent of $1\frac{1}{2}$ cm., whilst the exceedingly small liver is attached to the posterior part of the diaphragm, and covered in front by intestine and stomach. The lower tumor was an ovarian cyst, connected with the omental tumor by a thin band.

TREATMENT OF OMENTAL TUMORS.

In acute cases the underlying trouble will, of course, be the object of treatment. Nevertheless, in cases of perityphlitis or of any other intraperitoneal infection, the suddenly appearing tumor has to be correctly diagnosticated, because only then will we abstain with perfect complacency from meddling with it. Nothing would be a greater mistake than to cut down on it for its removal. Obviously, the case would be infinitely aggravated by such an attempt. Even a simple incision must open anew the connection between the infecting focus and the peritoneal cavity, which, fortunately, had been closed by the adhesive omentitis. A different course, though, must be pursued when a greater quantity of pus has to be evacuated for the saving of the patient's life, as, for instance, in appendicitis under certain circumstances. Here, evidently, not the omental cake is the object of the operation, but the removal of the infecting material.

But even then we have to operate with a full understanding of the omental conditions. The operation has to be performed in such a way as not to break through the partition toward the intra-peritoneal cavity. In appendical and cæcal abscesses, for instance, the incision has to be made as much laterally as possible, because we may in this way get into the abscess without encountering the omental adhesions. The pus mostly breaks through the abscess wall on its weakest point, which is the lateral area not protected by the omentum. There the parietal peritoneum has made firm adhesions to the gut, and

when the pus breaks through, it gets into the præperitoneal cellular tissue in the iliac fossa. It thus forms a new abscess cavity, connected with the first one by a more or less wide opening. This latter may close entirely, leaving only the secondary abscess, the primary one having emptied itself and healed. But even if the connection persists, the superficial cavity will contain the bulk of the purulent secretion. For such cases all that is required, is a free incision into the superficial extra-peritoneal abscess cavity, which has to be treated exactly as any other superficial abscess. If no operation is decided on, warm fomentation over the tumor, absorbent incisions, etc., may be tried. I think massage should not be risked during the acute stage. Rest, of course, is the great remedy, and rest especially to the bowels, so as to favor omental adhesions. I confess that I give opiates, rather than salines, whenever I see an omental cake appear. I do not subscribe to ironclad rules in the treatment of peritonitis any more than in any other disease.

The next question is: What to do with the chronic omental tumor, after all inflammatory symptoms have subsided? If there is no trace of fever, no indication of persistence of the primary disease, if there is nothing but the tumor left, then our action should be based on the amount of suffering justly ascribable to the tumor. If there is no suffering, it should not be touched, but if the omental adhesion, by dragging on one or the other abdominal organs, or by interfering with its blood supply, should do harm, then I do not see why it should not be done away with. Especially is this a necessity after laparotomies, whose aims often enough become frustrated by such new and unforeseen accidents. Therefore, if massage, warm baths, resorbent internal and external treatment have failed, a new laparotomy ought to be performed, the omentum detached, and as much of it as seems necessary cut away. If we do not resect the detached fringes, there is great danger that they attach themselves anew. It is true, the cut surface of the omentum has also the tendency to fix itself to the nearest serous membrane, but it will then come in contact with healthy tissues, and the liability to new adhesions is greatly lessened.

The treatment in such abscesses as are surrounded by an

omental hull, ought to be similar. If it can safely be done, the omentum ought to be detached and removed; but in such cases where there is danger in tearing away the adherent parts of other structures, especially of the bowels, it has been sufficiently demonstrated by experience, that it is safer simply to empty the abscess. It is remarkable how, after the cause of the irritation has been removed, the parts may become separated from each other, and how quick they may regain their normal conditions. But even if the omental tumor should remain, it will be the lesser of two evils.

In conclusion, a few words in regard to the treatment of the cicatricial endo-omental tumor: As it is harmless, no sensible surgeon will think of meddling with it. The uneasiness of the patient will best be relieved by an explanation of the nature of the trouble.